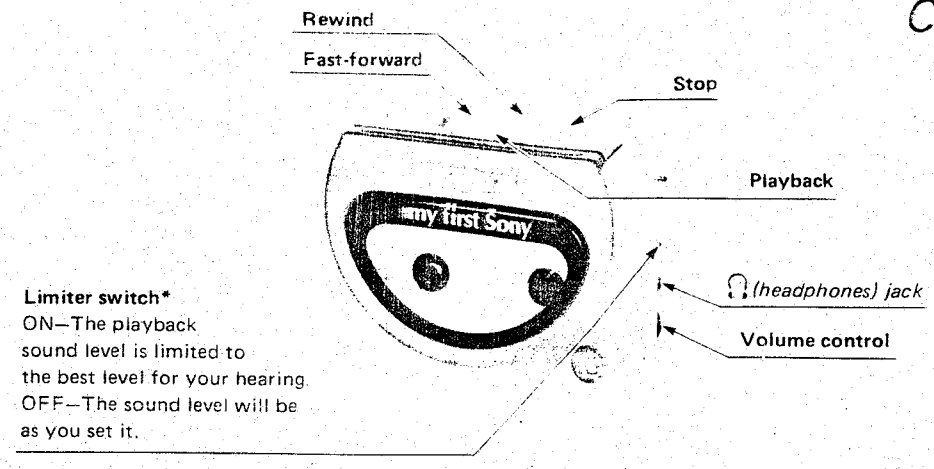
WM-3000

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model



SPECIFICATIONS

Tape track	4-track 2-channel stereo
Fast winding time	Approx. 3 min. 30 sec. with Sony C-60 cassette
Frequency response	40 – 15,000Hz
Power output	15mW + 15mW (at 10% harmonic distortion) load impedance 32 ohms
Power requirements	3V DC, two size AA (IEC designation R6) batteries

Battery life

Batteries	Continuous playback hours
Sony New Super SUM-3 (NS)	Approx. 4
Sony alkaline AM3(N)	Approx. 8

For maximum performance we recommend the use of alkaline batteries.

Dimensions	Approx. 137 x 95.3 x 40.4mm (w/h/d) (5 1/2 x 3 7/8 x 1 5/8 inches) incl. projecting parts and controls
Weight	Approx. 264g (6.9 oz) incl. batteries, not incl.
Accessories	Stereo headphones Shoulder belt

Model Name Using Similar Mechanism	WM-68 WM-K1
Tape Transport Mechanism Type	MT-WM3000-04

MICROFILM

STEREO CASSETTE PLAYER

SONY

SECTION 1
ADJUSTMENTS

1-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   playback head pinch roller
   capstan
   rubber belts
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Meter Reading	Torque Meter
Forward	22-45g · cm (0.30-0.63oz · inch)	CQ-102C
Cast Forward	55-130g · cm (0.77-1.8oz · inch)	CQ-201B
Rewind	55-150g · cm (0.77-2.1oz · inch)	CQ-201B
Back Tension	0.5-2g · cm (0.007-0.028oz · inch)	CQ-102C

Tape Tension Measurement

Meter	Meter Reading
CQ-403A	more than 100g (3.57oz)

Test Tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment
P-4-A063	6.3kHz, −10dB	Playback Head Azimuth Adjustment

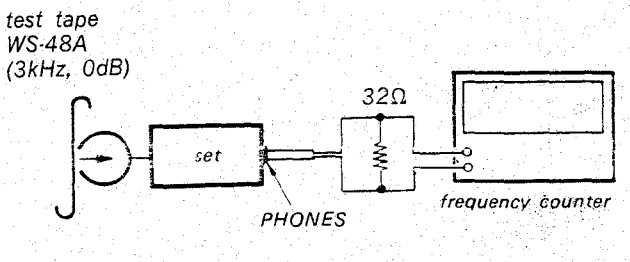
1-2. ELECTRICAL ADJUSTMENTS

CASSETTE Section

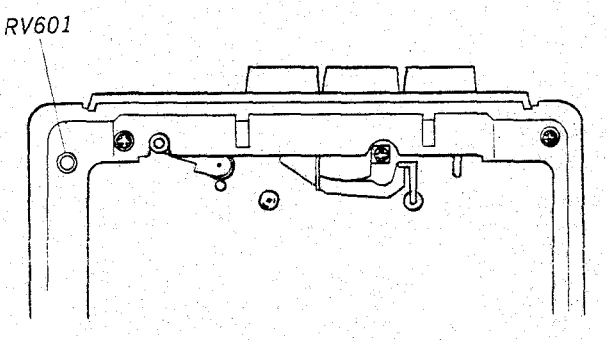
Tape Speed Adjustment

Setting:
VOLUME control: MAX
LIMITER (S301): OFF

Procedure:
Mode: playback



Adjustment Location:



Specifications:

Digital frequency counter
3000 ±10Hz

Adjust RV601
Frequency difference between beginning and end of tape should be within ±1% (30Hz).

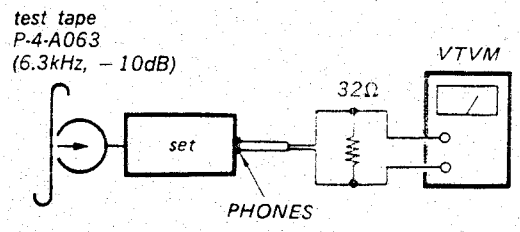
Playback Head Azimuth Adjustment

Setting:

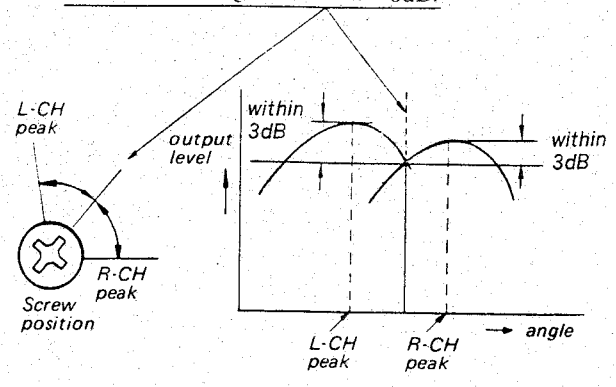
VOLUME control: MAX
LIMITER (S301): OFF

Procedure:

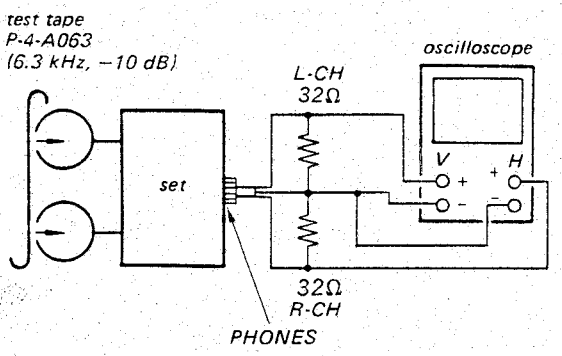
1. Mode: playback

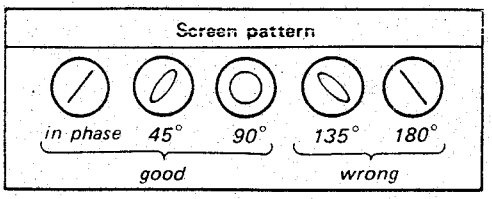


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 3dB.

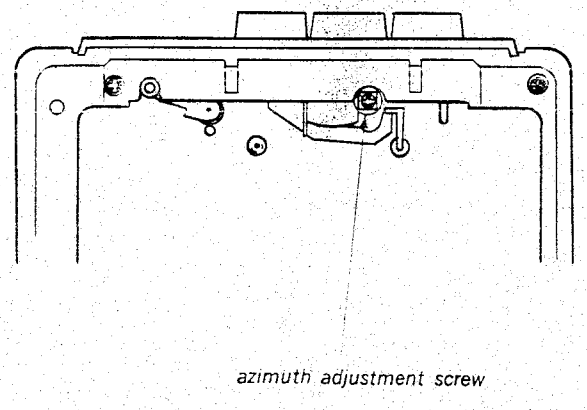


3. Phase Check
Mode: playback



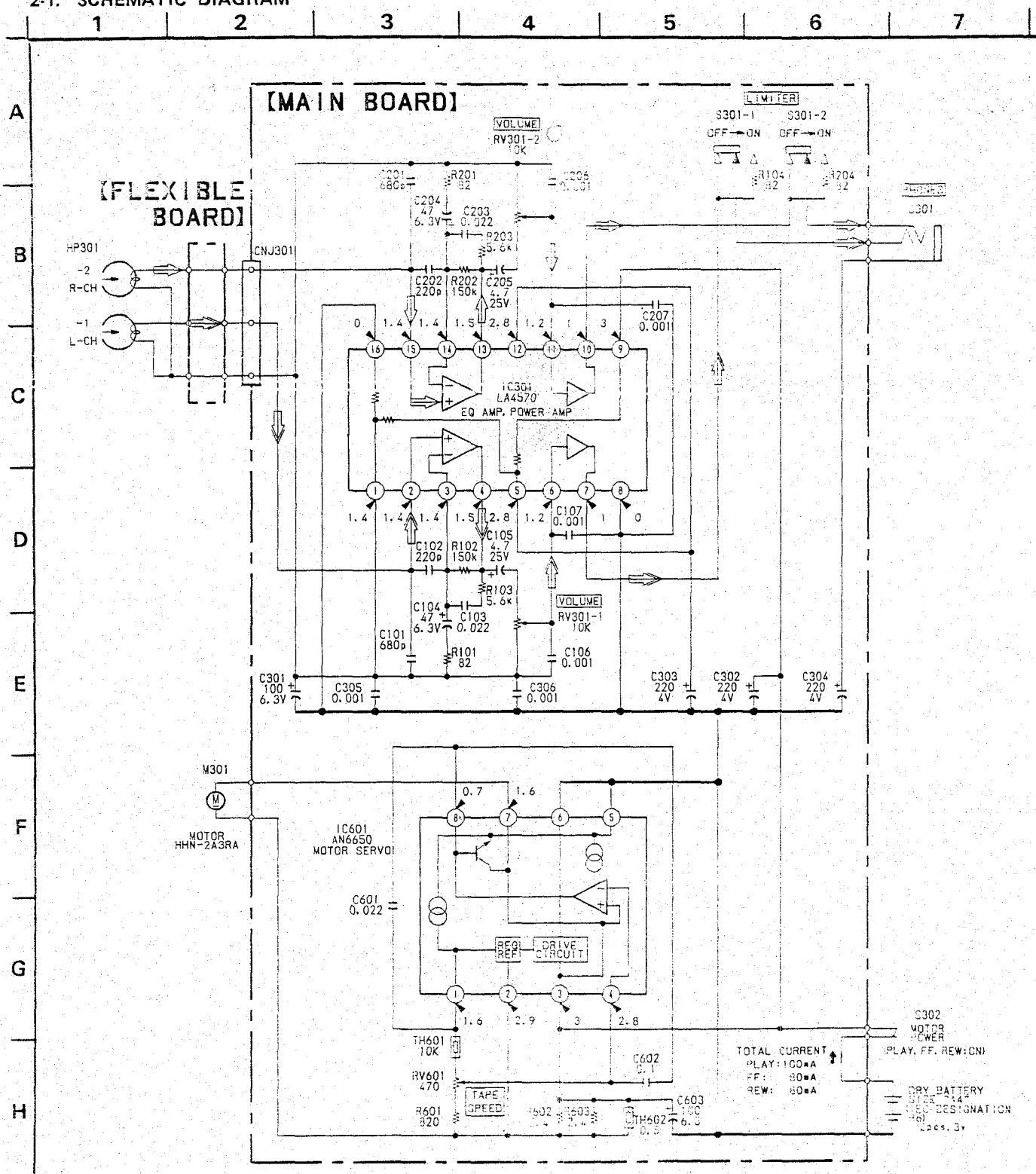


Adjustment Location:



SECTION 2
DIAGRAMS

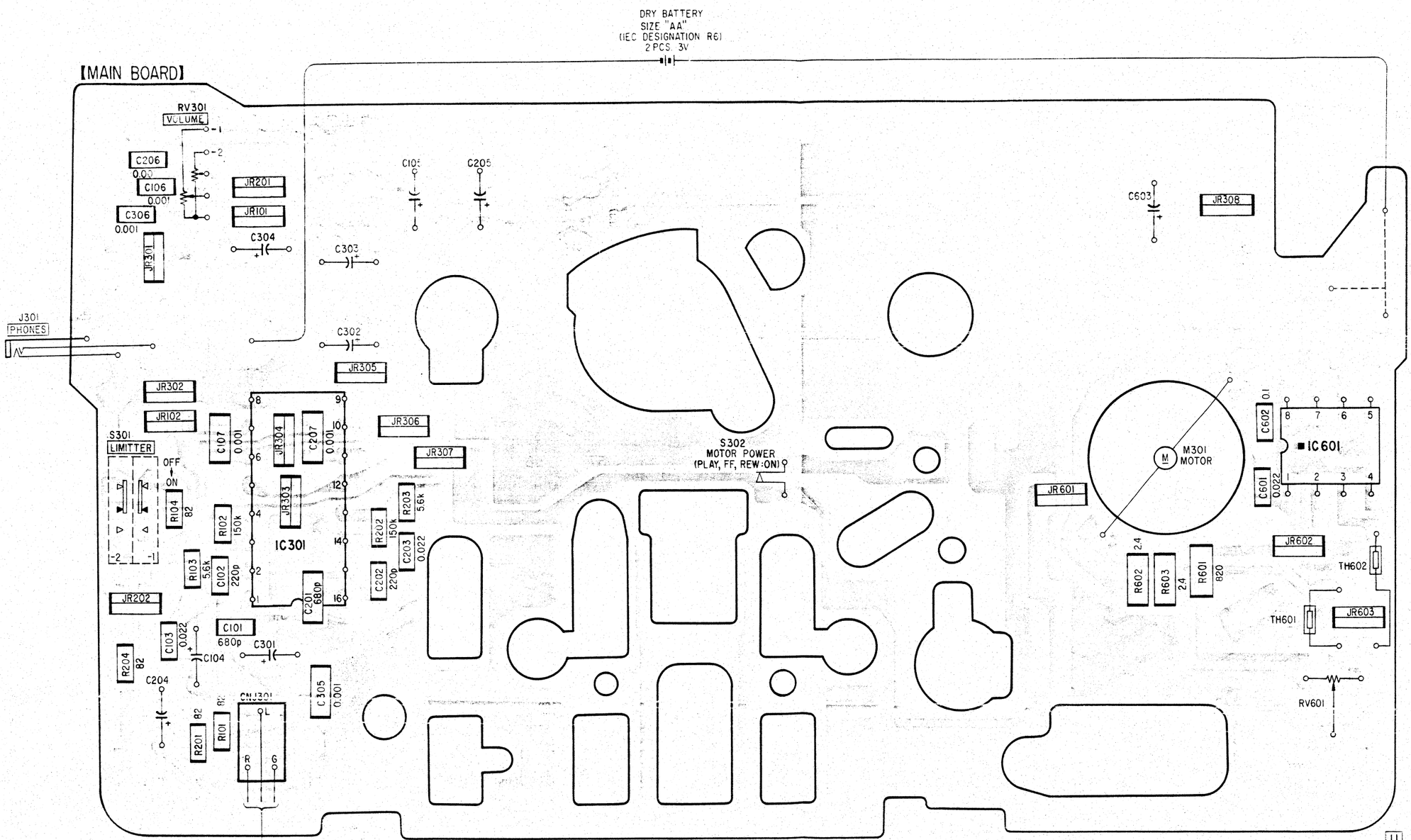
2-1. SCHEMATIC DIAGRAM



Note:

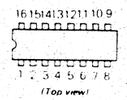
- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ⇨ : L-CH signal pat
- ⇨ : R-CH signal path
- Total current is measured with no cassette installed.
- Power voltage is 3V and fed with regulated dc power supply from battery terminal.
  Voltages are dc with respect to ground in PLAY mode. Voltage variations may be noted due to normal production tolerances.

2-2. MOUNTING DIAGRAM

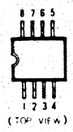


• Semiconductor Lead Layouts

LA4570



AN6650-LF

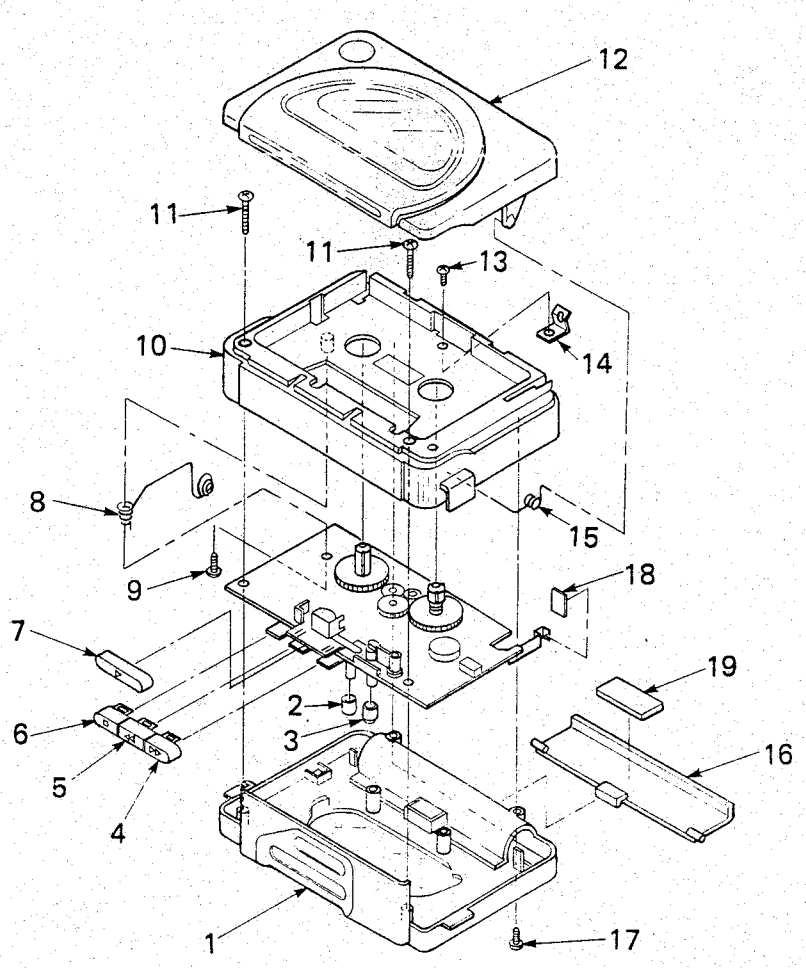


• ■ : part mounted on the conductor side.

SECTION 3
EXPLODED VIEWS AND PARTS LIST

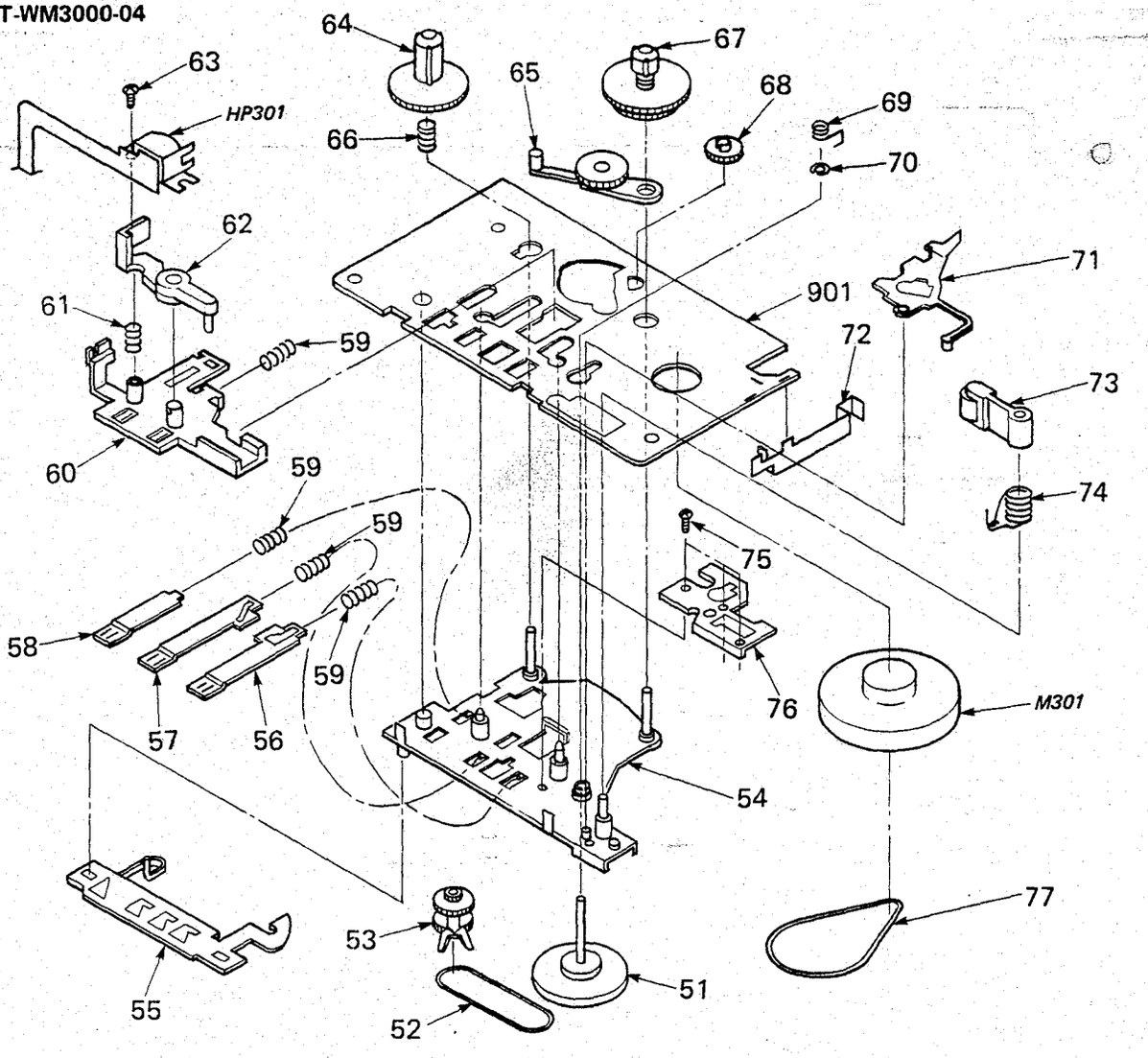
NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

(1)



No.	Part No.	Description	Remarks
1	X-3335-651-1	CABINET (REAR) ASSY	
2	*3-342-905-01	CAP (B)	
3	*3-342-904-01	CAP (A)	
4	3-334-059-21	BUTTON, FF	
5	3-334-060-21	BUTTON, REW	
6	3-334-061-31	BUTTON, STOP	
7	3-339-808-11	BUTTON, PLAY	
8	3-342-906-01	SPRING	
9	3-338-355-01	SCREW (M2), TAPPING	
10	3-342-916-01	CABINET (FRONT)	
11	3-335-640-11	SCREW (M2X12)	
12	X-3335-650-1	HOLDER ASSY, CASSETTE	
13	3-339-862-01	SCREW (M1.7X2.5)	
14	3-339-805-01	SPRING	
15	3-342-903-01	SPRING	
16	3-342-913-01	LID, BATTERY CASE	
17	3-335-640-21	SCREW (M2X8)	
18	9-911-863-XX	STOPPER, H (t=0.5)	
19	9-911-815-01	STOPPER (t=3)	

(2) MD
MT-WM3000-04



No.	Part No.	Description	Remarks
51	X-3335-659-1	FLYWHEEL ASSY	
52	3-335-604-01	BELT, MIDWAY	
53	X-3334-008-1	GEAR ASSY, MIDWAY	
54	X-3334-020-1	BASE ASSY, GUIDE	
55	3-335-618-21	PLATE, LOCK BUTTON	
56	3-335-611-11	LEVER, FF	
57	3-335-610-11	LEVER, REW	
58	3-335-609-01	LEVER, STOP	
59	3-335-605-01	SPRING, COMPRESSION	
60	3-334-080-01	CHASSIS, HEAD	
61	3-334-078-01	SPRING (AZIMUTH), COMPRESSION	
62	3-336-765-01	LEVER, PU	
63	3-342-917-01	SCREW (IT3-C), TAPPING, + B	
64	3-335-612-01	GEAR, SUPPLY REEL	
65	X-3334-007-1	GEAR ASSY, PLAY	

No.	Part No.	Description	Remarks
66	3-335-602-01	SPRING, COMPRESSION	
67	X-3334-006-2	TABLE ASSY, REEL, TAKE-UP	
68	3-334-089-01	GEAR, FF	
69	*3-336-705-02	SPRING	
70	3-321-483-11	RING, RETAINING	
71	3-335-613-11	LEVER (A), SHUT-OFF	
72	3-342-902-01	TERMINAL BOARD, PLUS	
73	X-3334-099-1	PINCH ROLLER ASSY	
74	3-335-608-01	SPRING	
75	3-894-748-01	SCREW (B1.4X2.5), TAPPING	
76	*3-338-375-01	SPACER (A), GUIDE	
77	3-338-334-01	BELT, CAPSTAN	
901	*A-3015-560-A	PC BOARD ASSY, MAIN	
HP301	1-543-411-11	HEAD, MAGNETIC (PLAYBACK)	
M301	1-541-416-21	MOTOR	

SECTION 4
ELECTRICAL PARTS LIST

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

- IT:Italian model
- FR:French model
- WG:West Germany model

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	*A-3015-560-A	PC BOARD ASSY, MAIN			
C101	1-163-137-00	CERAMIC CHIP	680PF	10%	50V
C102	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C103	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C104	1-124-224-00	ELECT	47MF	20%	6.3V
C105	1-124-245-00	ELECT	4.7MF	20%	25V
C106	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C107	1-163-205-00	CERAMIC CHIP	0.001MF	10%	50V
C201	1-163-201-00	CERAMIC CHIP	680PF	10%	50V
C202	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C203	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C204	1-124-224-00	ELECT	47MF	20%	6.3V
C205	1-124-245-00	ELECT	4.7MF	20%	25V
C206	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C207	1-163-205-00	CERAMIC CHIP	0.001MF	10%	50V
C301	1-123-661-00	ELECT	100MF	20%	6.3V
C302	1-123-827-00	ELECT	220MF	20%	4V
C303	1-123-827-00	ELECT	220MF	20%	4V
C304	1-123-827-00	ELECT	220MF	20%	4V
C305	1-163-205-00	CERAMIC CHIP	0.001MF	10%	50V
C306	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C601	1-163-033-00	CERAMIC CHIP	0.022MF	10%	25V
C602	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C603	1-123-661-00	ELECT	100MF	20%	6.3V
CNJ301	*1-563-350-11	CONNECTOR, F.P.C 3P			
HP301	1-543-411-11	HEAD, MAGNETIC (PLAYBACK)			
IC301	8-759-802-85	IC LA4570			
IC601	8-759-403-65	IC AN6650-LF			
J301	1-563-316-31	JACK (PHONES)			
JR101	1-216-296-00	METAL CHIP	0	5%	1/8W
JR102	1-216-296-00	METAL CHIP	0	5%	1/8W
JR201	1-216-296-00	METAL CHIP	0	5%	1/8W
JR202	1-216-296-00	METAL CHIP	0	5%	1/8W
JR301	1-216-296-00	METAL CHIP	0	5%	1/8W
JR302	1-216-296-00	METAL CHIP	0	5%	1/8W
JR303	1-216-296-00	METAL CHIP	0	5%	1/8W
JR304	1-216-296-00	METAL CHIP	0	5%	1/8W
JR305	1-216-296-00	METAL CHIP	0	5%	1/8W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
JR306	1-216-296-00	METAL CHIP	0	5%	1/8W
JR307	1-216-296-00	METAL CHIP	0	5%	1/8W
JR308	1-216-296-00	METAL CHIP	0	5%	1/8W
JR601	1-216-296-00	METAL CHIP	0	5%	1/8W
JR602	1-216-296-00	METAL CHIP	0	5%	1/8W
JR603	1-216-296-00	METAL CHIP	0	5%	1/8W
M301	1-541-416-21	MOTOR			
R101	1-216-023-00	METAL CHIP	82	5%	1/10W
R102	1-216-101-00	METAL CHIP	150K	5%	1/10W
R103	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R104	1-216-023-00	METAL CHIP	82	5%	1/10W
R201	1-216-023-00	METAL CHIP	82	5%	1/10W
R202	1-216-101-00	METAL CHIP	150K	5%	1/10W
R203	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R204	1-216-023-00	METAL CHIP	82	5%	1/10W
R601	1-216-196-00	METAL CHIP	820	5%	1/8W
R602	1-216-135-00	METAL CHIP	2.4	5%	1/8W
R603	1-216-135-00	METAL CHIP	2.4	5%	1/8W
RV301	1-237-623-11	RES, VAR, CARBON 10K/10K with KNOB (VOLUME)			
RV601	1-237-130-11	RES, ADJ, CARBON 470			
S301	1-570-659-11	SWITCH, SLIDE (LIMITER)			
S302	1-570-549-11	SWITCH, LEAF (MOTOR POWER)			
TH601	1-807-488-11	THERMISTOR (POSITIVE)			
TH602	1-807-489-11	THERMISTOR (POSITIVE)			

ACCESSORY & PACKING MATERIAL

Part No.	Description
3-338-345-01	CARD BOARD
3-342-910-01	BELT, SHOULDER
3-342-918-01	CUSHION
*3-342-921-02	(US).....INDIVIDUAL CARTON
*3-345-609-01	(Canadian).....INDIVIDUAL CARTON
*3-347-825-01	(AEP, IT, FR)...INDIVIDUAL CARTON
3-769-945-12	(AEP, UK, IT, FR, WG)...MANUAL, INSTRUCTION
3-769-945-41	(AEP, IT, WG).....MANUAL, INSTRUCTION
8-952-313-92	HEADPHONE MDR-005L/R SET